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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/082,637	STONE ET AL.	
	Examiner	Art Unit	
	HABTE MERED	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09-30-08*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8 and 10-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *44* is/are allowed.

6)☒ Claim(s) *1,3-5,7,8,10-13,15-23,25-34,36-40,42 and 45* is/are rejected.

7)☐ Claim(s) *6,14,24,35,41 and 43* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment filed on 9/30/2008 has been entered and fully considered.

2. Claims 1, 3-8, 10-45 are pending in the instant Application. Claims 2 and 9 have been previously cancelled. Claims 1, 8, 19, 29, 40 and 42 are the previous independent base claims and are currently amended. Independent claims 44 and 45 are new.

Response to Arguments

3. Applicant's argument with respect to claim 1's 102 rejection has been considered but is moot in view of the fact that the claim has been amended. Consequently the 102 rejection has been withdrawn. Claim 1 is currently rejected under 35 U.S. C. 103 (a) as being unpatentable over Palmer'355 in view of Einbinder'302 and Huang'846. The new prior art, Huang'846, is introduced to address the newly added limitation. Applicant argues in the Remarks on page 14 in the 5th paragraph that the combination of Palmer'355 and Einbinder'302 is improper because Palmer'355 is based on isochronous data and Einbinder'302 establishes priority for real time data and not isochronous data. Examiner respectfully disagrees with Applicant's conclusions. According to Newton's Telecom Dictionary isochronous data is two way communication without delay and gives voice communication as an example which effectively establishes isochronous data to be real time data. Applicant's further argument that the

prior arts do not allow devices of IEEE 1394-2000 and Ethernet to co-exist in a network is not relevant because these protocols were not previously claimed in any of the independent claims.

4. Applicant argues in the Remarks on page 16 that with respect to claim 8 that Palmer'355 fails to teach a third interface and sites column 10, lines 36-39 as evidence that it is only configured as a switch. Examiner respectfully disagrees. Examiner reminds Applicant that the primary interface, Banks'979, has already taught a 3rd interface. Further the limitation requires a third interface for communicating to the switching device and if as Applicant suggest it is configured as a switch then it has that 3rd interface allowing it to communicate with other devices as shown in Fig. 4A.

5. Applicant's argument with respect to claim 40's 102 rejection has been considered but is moot in view of the fact that the claim has been amended. Consequently the 102 rejection has been withdrawn. Claim 40 is currently rejected under 35 U.S. C. 103 (a) as being unpatentable over Romans'453 in view of Huang'846. The new prior art, Huang'846, is introduced to address the newly added limitation.

6. Applicant in the Remarks on page 20 argues with respect to claim 42 that Brown'431 is not applicable as a prior art because it is not based on a network environment and is based on a shared bus. Examiner respectfully disagrees with Applicant's conclusion. Even though Brown'431 is not based in the traditional network environment its teaching is applicable to the primary reference, Heil'411, which addresses the network portion of the limitation as the rejection is under 35 U.S.C. 103(a).

7. Examiner has indicated new claim 44 as allowable as it strictly claims the novelty of the Applicant's invention which is using IEEE 1394-2000 Asynchronous traffic and Ethernet traffic in a network environment. Further Examiner has objected to Claims 6, 14, 24, 35, 41, and 43. It should be noted that these dependent claims are now objected simply because the combination of the newly added limitation in all the independent claims these dependent claims depend in conjunction with what these dependent claims recite effectively teach the novelty of the Applicant's invention which is using IEEE 1394-2000 Asynchronous traffic and Ethernet traffic in a network environment.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. **Claims 1, 3-5, and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer et al (US 6, 141, 355), hereinafter referred to as Palmer in view of Einbinder et al (US 6, 704, 302 B2) and Huang et al (US 6, 483, 846 B1).

Regarding **claim 1**, Palmer'355 discloses a method of transmitting data within a network including one or more of a first type of device **(Figure 2, DA 2 (Device Adapter 2))** operating according to a first protocol **(Real-Time isochronous protocol because**

it supports element 200 RTD (Real Time Device). See also Column 1, Lines 20-32) and a second protocol **(Non-Real Time Ethernet protocol because it supports element 100 NRTD (Non-Real Time Device))** and one or more of a second type of device **(Figure 2, DA 3 (Device Adapter 3))** operating according to only the second protocol **(Non-Real Time Ethernet protocol because it supports element 100 NRTD (Non-Real Time Device))** where devices of the first type and devices of the second type communicate with each other **(All DAs in Figures 2 and 6 communicate with each other as illustrated in Columns 7, Lines 10-25 and 9, Lines20-32 and in Figure 5B)** comprising:

a. establishing a periodic cycle including a first portion and a second portion **(See Column 4, lines 55-67 and Column 7, lines 10-25 where Palmer'355 teaches a periodic time frame with two portions for transmitting isochronous and non-real time Ethernet data)** ;

b. allowing only transmissions according to the first protocol during the first portion **(See Column 4, lines 55-67 – only isochronous real time data like voice and audio is transmitted)**; and

c. allowing only transmissions according to the second protocol during the second portion**(See Column 4, lines 55-67 – only non-real time Ethernet data is transmitted)**

Palmer'355 fails to disclose the first protocol (i.e. real time isochronous protocol) has priority over the second protocol (i.e. non-real time Ethernet protocol).

However, the above mentioned claimed limitations are well known in the art as evidenced by Einbinder'302. In particular, Einbinder'302 discloses the first protocol (i.e. real time isochronous protocol such as voice) has priority over the second protocol (i.e. non-real time Ethernet protocol) **(See Column 2, lines 26-30 and 60-67 where Einbinder'302 teaches giving real time isochronous protocol high priority)**.

In view of the above, having the method of Palmer'355 and then given the well established teaching of Einbinder'302, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Palmer'355 as taught by Einbinder'302, since Einbinder'302 clearly states that such a modification allows high quality voice transmission over data network.

Palmer'355 fails to disclose a method further wherein the second protocol is prioritized between a first set traffic and a second set traffic.

However, the above mentioned claimed limitations are well known in the art as evidenced by Huang'846. In particular, Huang'846 discloses further wherein the second protocol **(i.e. Ethernet protocol as discussed in Column 2, Line 67- Column 3, Line 8– note that Palmer'355's 2nd protocol is Ethernet too)** is prioritized between a first set traffic and a second set traffic **(Huang'846 in Figure 2A shows that the Ethernet protocol running on an Ethernet device like that of Palmer'355's element 100 of Fig. 2 accommodates two types of traffic – real time and non-real time traffic – see Column 2, Line 67- Column 3, Line 8 and Column 5, Lines 60-63)**.

In view of the above, having the method of Palmer'355 and then given the well established teaching of Huang'846, it would have been obvious to one having ordinary

skill in the art at the time of the invention was made to modify the method of Palmer'355 as taught by Huang'846, since Huang'846 clearly states in Column 2, Lines 45-50 that such a modification allows guarantee of real time traffic over Ethernet.

Regarding **claim 3**, Palmer'355 discloses a method further comprising converting the transmission into a format understood by a receiving device. **(All the Device Adapters convert the isochronous and asynchronous input to Ethernet packets as shown in Figure 3)**

Regarding **claim 4**, Palmer'355 discloses a method wherein duration of the first portion is dependent on a number of active streams of the first protocol within the network. **(See Column 5, lines 7-18 Palmer shows that the length of time allotted for the first protocol, i.e. isochronous, is dependent on the number of active streams which in turn depend on the isochronous channels established.)**

Regarding **claim 5**, Palmer'355 discloses a method further comprising establishing an active stream of the first protocol **(i.e. isochronous)** within the network and guaranteeing first protocol bandwidth to the active stream. **(See Column 4, lines 55-67; Column 5, lines 7-18; and Column 7, lines 10-25 – note that the first portion of the periodic time frame is dedicated to isochronous protocol)**

Regarding **claim 7**, Palmer'355 discloses a method wherein the first protocol is isochronous **(isochronous/real-time/TDM see Column 1, lines 23-32)** capable and the second protocol is asynchronous **(ETHERNET or CSMA/CD protocol which is asynchronous See Column 9, lines 1-8)**.

10. **Claims 8, 10-13, and 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Banks et al (US 6, 747, 979), hereinafter referred to as Banks, in view of Palmer'355, Huang'846 and Suda et al (US 7, 275, 255 B2).

Regarding **claim 8**, Banks'979 discloses a modified hub device configured for coupling between two or more devices operating according to two or more different protocols **(See Column 10, Lines 35-45 – the network layer bridge is effectively a hub connecting devices in a LAN setting and the two different protocols are 802.3 LAN and IEEE 1394 LAN)**, the hub device **(Figure 5A, element 51)** wherein devices of the first type and devices of the second type communicate with each other **(See Column 13, lines 40-67 and See Column 1, Lines 20-25 and Figure 5B)** comprising:

a. a first interface **(i.e. Figure 5A, element 53)** configured for coupling to and communicating with one or more of a first type of device operating according to a first protocol **(i.e. isochronous)** and a second protocol **(i.e. asynchronous) (Note that Figure 5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44. As defined by the Standards Bodies and also confirmed by the Applicant – IEEE 1394 supports asynchronous and isochronous traffic. Clearly the Applicant is**

referring to the support for two different traffic types as constituting two different protocols);

b. a second interface **(i.e. Figure 5A, element 52)** configured for coupling to and communicating with one or more of a second type of device operating according to only the second protocol **(i.e. asynchronous only) (Figure 5A, element 52 is 802.3 LAN as illustrated in Column 10, Line 43 and uses asynchronous protocol only).**

Banks'979 discloses bridges communicating with a router, which is a layer 3 switch, via a LAN segment as shown in Figure 6. Banks'979, however, fails to expressly disclose a bridge (i.e. hub) that is directly connected to and communicating with a switch device that sends periodic signal, which starts the start of a period having a first portion and second portion.

Palmer'355 discloses a bridge **(In Figure 2, all Device Adapters act as a bridge)** with an interface configured for coupling to and communicating with the switching device **(Figure 2, element 4, x-hub switch, and Figure 4a)** that sends periodic signal, which starts the start of a period having a first portion and second portion **(Palmer'355 shows a period having a first and second portion in Column 4:55-67 and to establish these cyclic periods Palmer'355 shows use of signaling protocol between the hubs (i.e. DAs) and the switch (i.e. X-hub) in Column 7:5-10 and further given the signaling protocol it is inherent for the switch (i.e. X-hub) to send signals to the DAs to indicate the start of a phase or period.)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Banks'979's' bridge to incorporate an interface configured

for coupling to and communicating with the switching device. The motivation being the use of an Ethernet switch allows a particular LAN to connect and communicate with more than one different LAN as illustrated in Palmer'355's Column 3, lines 57-67 and Column 4, lines 19-32.

Banks'979 also fails to disclose a transmission scheme where periodic signals are sent to signal the start of a period having a first portion and a second portion, wherein only communications in the first protocol are allowed during the first portion and only communications in the second protocol are allowed during the second portion.

Suda'255 discloses a transmission scheme **(i.e. Figure 17)** shown in where periodic signals **(i.e. Cycle Start Packet)** are sent to signal the start of a period **(i.e. 125 usec and repeats)** having a first portion **(i.e. between CSP and first sub-action gap)** and a second portion **(i.e. between the first sub-action gap and the next CSP for the following cycle)**, wherein only communications in the first protocol **(i.e. isochronous protocol)** are allowed during the first portion and only communications in the second protocol **(i.e. asynchronous protocol)** are allowed during the second portion **(Note that each cycle is divided into two portions for transmitting isochronous packets and asynchronous packets as discussed by Suda'255 in Column 13, Lines 30-67 and Column 14, Lines 1-20)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Banks'979s' bridge to incorporate a transmission scheme to handle asynchronous and isochronous traffic. The motivation being given that asynchronous and isochronous traffics are the main type of traffics handled in home

and small office networks and having such a transmission scheme allows different devices to communicate in these types of networks efficiently with high QoS as can easily be inferred from Suda'255 Column 1, Lines 50-55.

Banks'979 fails to disclose a device further wherein the second protocol is prioritized between a first set traffic and a second set traffic.

However, the above mentioned claimed limitations are well known in the art as evidenced by Huang'846. In particular, Huang'846 discloses a device further wherein the second protocol **(i.e. Ethernet protocol as discussed in Column 2, Line 67- Column 3, Line 8– note** that **Banks'979's 2nd protocol is Ethernet too)** is prioritized between a first set traffic and a second set traffic **(Huang'846 in Figure 2A shows that the Ethernet protocol running on an Ethernet device like that of Banks'979's Figure 5A, element 52 accommodates two types of traffic – real time and non-real time traffic – see Column 2, Line 67- Column 3, Line 8 and Column 5, Lines 60-63).**

In view of the above, having the device of Banks'979 and then given the well established teaching of Huang'846, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Banks'979 as taught by Huang'846, since Huang'846 clearly states in Column 2, Lines 45-50 that such a modification allows guarantee of real time traffic over Ethernet.

Regarding **claim 10**, Banks'979 fails to disclose a modified hub device further comprising a conversion circuit coupled to the first interface, the second interface and

the third interface for converting transmissions into a format understood by a receiving device.

Palmer'355 discloses a modified hub device **(See Figure 3)** further comprising a conversion circuit coupled to the first interface **(Figure 3, element 1004)**, the second interface **(Figure 3, element 1006)** and the third interface **(Figure 3, element 1008)** for converting transmissions into a format understood by a receiving device. **(See Column 10, Lines 1-10 where the storing and conversion of RTD and NRTD formats occurs)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Banks'979's apparatus to incorporate a conversion circuit to format packets in a manner understood by receiving device. The motivation being such an arrangement allows communication between different devices having different protocols.

Regarding **claim 11**, the combination of Banks'979, Palmer'355, Huang'846 and Suda'255 discloses a modified hub device **(Banks'979's Figure 3)** wherein duration of the first portion **(i.e. isochronous protocol)** is dependent on a number of active streams of the first protocol **(See Column 5, lines 7-18 Palmer shows that the length of time allotted for the first protocol, i.e. isochronous, is dependent on the number of active streams which in turn depend on the isochronous channels established. Suda'255 also effectively shows the same teaching in Figure 17).**

Regarding **claim 12**, the combination of Banks'979, Palmer'355, Huang'846 and Suda'255 discloses a modified hub device wherein the modified hub device communicates with the switching device **(i.e. Banks'979 layer 3 router 68 talks with switching devices 61 and 62 – see Figure 6 and also Column 14, Lines 24-35)** and establishes an active stream involving a device of the first type **(Palmer'355's RTD devices in Figure 1)** coupled to the hub device **(i.e. Palmer'355's Figure 3 and 4 show the hub device talking to the RTD)** and further wherein appropriate bandwidth for the active stream is guaranteed when the active stream is established **(See Palmer'355's Column 8, Lines 9-12 where bandwidth is guaranteed for the RTD time sensitive active stream)**.

Regarding **claim 13,** the combination of Banks'979, Palmer'355, Huang'846 and Suda'255 discloses a modified hub device wherein the modified hub device communicates with the switching device **(i.e. Banks'979 layer 3 router 68 talks with switching devices 61 and 62 – see Figure 6 and also Column 14, Lines 24-35)** and establishes an active stream involving a device of the first type **(Palmer'355's RTD devices in Figure 1)** coupled to the hub device **(i.e. Palmer'355's Figure 3 and 4 show the hub device talking to the RTD)** and to assign a label corresponding to the active stream . **(See Palmer'355's Column 8, Lines 9-12 where bandwidth is guaranteed for the RTD time sensitive active stream. It is inherent for the system to mark the newly created streams with some form of identification or label to distinguish at the minimum between asynchronous and isochronous flows)**

Regarding **claim 15**, Banks'979 discloses a modified hub device wherein the first protocol is isochronous and the second protocol is asynchronous. **(Since Banks'979 device supports IEEE 1394 protocol support for Asynchronous and Isochronous traffic based on IEEE standards is inherent.)**

Regarding **claim16**, the combination of Banks'979, Palmer'355, Huang'846 and Suda'255 discloses a modified hub device **(i.e. Banks'979's Figure 5A, element 51)** wherein communications from the first type of device **(i.e. real time devices)** in the second protocol **(i.e. asynchronous)** are prioritized **(i.e. arbitration in Figure 15)** during the second portion over communications from the second type of device **(i.e. non-real time device)** in the second protocol **(i.e. asynchronous) (Note that in Suda'255's Figure 15 arbitration occurs to determine priority in the 2nd half of the cycle).**

Regarding **claim 17**, the combination of Banks'979, Palmer'355, Huang'846 and Suda'255 discloses a modified hub device **(i.e. Banks'979's Figure 5A, element 51)** wherein communications from the second type of device **(i.e. non-real time device)** in the second protocol **(i.e. asynchronous)** are prioritized **(i.e. arbitration in Figure 15)** during the second portion over communications from the first type of device **(i.e. real**

time devices) in the second protocol **(i.e. asynchronous) (Note that in Suda'255's Figure 15 arbitration occurs to determine priority in the 2nd half of the cycle).**

11. **Claim 18** is rejected under 35 U.S.C. 103(a) as being unpatentable over Banks'979 in view of Palmer'355, Huang'846 and Suda'255 as applied to claim 8 above, and further in view of Thaler et al (US 6, 772, 267).

Regarding **claim 18**, the combination of Banks'979, Palmer'355, Huang'846 and Suda'255 teaches all aspects of the claimed invention as set forth in the rejection of claim 8 but does not disclose a modified hub device wherein the switching device is configured for coupling to a remote network of devices thereby providing a wide area network.

Thaler'267 discloses a modified hub **(Figure 1, elements 100, and 112 are hubs)** device wherein the switching device **(Figure 1, element 104)** is the switching device is configured for coupling to a remote network of devices thereby providing a wide area network **(Figure 1, element 108 is a WAN).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the bridge based on the combination of Banks'979, Huang'846, Palmer'355, and Suda'255 to incorporate an interface configured for coupling to and communicating with a switching device configured for coupling to a remote network of devices. The motivation for coupling to remote network devices is to access the Internet and have the ultimate networking capability.

12. **Claims 19-23, 25, 29-34, and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer'355, in view of Banks'979, Huang'846, and Einbinder'302.

Regarding **claim 19**, Palmer'355 discloses a switching device **(See Figure 2, element 4, Figure 4A, and Figure 5A, and Figure 6, element 6)** configured for coupling to two or more hub devices **(All the DAs in Figures 2 and 6 are hubs).** Palmer'355 further discloses the switching device comprising:

a. a plurality of ports **(Figure 4A shows 8 inputs and corresponding Figure 4B shows 8 DAs (i.e. hubs) and Column 11: 43-50 illustrates that each port is coupled to a corresponding DA or Hub)**, each port coupled to a corresponding hub device for interfacing with devices coupled to the corresponding hub device **(Figure 4B shows 8 DAs (i.e. hubs) and Column 11: 43-50 illustrates that each port is coupled to a corresponding DA or Hub)**; and

b. a control circuit coupled to the plurality of ports **(See Figures 4A, elements 45 is a processor that acts as a controller).**

Palmer'355 also discloses a transmission scheme where periodic signals are sent to signal the start of a period **(i.e. time frame see Column 4, Lines 55-67)** having a first portion and a second portion **(i.e. 1st and 2nd period –see Column 4, Lines 55-67)**, wherein only communications in the first protocol **(i.e. isochronous)** are allowed during the first portion and only communications in the second protocol **(i.e. asynchronous)** are allowed during the second portion. **(Palmer'355 shows a period**

having a first and second portion in Column 4, Lines 55-67 and to establish these cyclic periods Palmer shows use of signaling protocol between the hubs (i.e. DAs) and the switch (i.e. X-hub) in Column 6, Lines 15-20, Column 7, Lines 5-23 and further using the signaling protocol the switch (i.e. X-hub) sends signals to the DAs to indicate the start of a phase or period or effectively the time frame schedule indicating beginning of first and second period.)

Palmer'355 fails to disclose hub devices providing interfaces to one or more of a first type of device operating according to a first protocol and a second protocol.

Banks'979's discloses hub devices **(Figure 5A, element 51)** providing interfaces to one or more of a first type of device operating according to a first protocol **(Figure 5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44. As defined by the Standards Bodies and also confirmed by the Applicant – IEEE 1394 supports asynchronous and isochronous traffic. Clearly the Applicant is referring to the support for two different traffic types as constituting two different protocols)** and a second protocol; and one or more of a second type of device operating according to only the second protocol **(Figure 5A, element 52 is 802.3 LAN as illustrated in Column 10, Line 43. See Column 10, Lines 35-45 – the network layer bridge is effectively a hub connecting devices in a LAN setting)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Palmer'355's switching device by incorporating Banks'979's bridge/hub device. The motivation being Banks'979's network layer bridge

that acts as a hub for interconnecting 1394 LAN to Ethernet LAN facilitates multimedia data exchange in different formats.

Palmer'355 fails to disclose the first protocol (i.e. real time isochronous protocol) has priority over the second protocol (i.e. non-real time Ethernet protocol).

However, the above mentioned claimed limitations are well known in the art as evidenced by Einbinder'302. In particular, Einbinder'302 discloses the first protocol (i.e. real time isochronous protocol such as voice) has priority over the second protocol (i.e. non-real time Ethernet protocol) **(See Column 2, lines 26-30 and 60-67 where Einbinder'302 teaches giving real time isochronous protocol high priority)**.

In view of the above, having the device of Palmer'355 and then given the well established teaching of Einbinder'302, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Palmer'355 as taught by Einbinder'302, since Einbinder'302 clearly states that such a modification allows high quality voice transmission over data network.

Palmer'355 fails to disclose a device further wherein the second protocol is prioritized between a first set traffic and a second set traffic.

However, the above mentioned claimed limitations are well known in the art as evidenced by Huang'846. In particular, Huang'846 discloses a device further wherein the second protocol **(i.e. Ethernet protocol as discussed in Column 2, Line 67- Column 3, Line 8– note that Palmer'355's 2nd protocol is Ethernet too)** is prioritized between a first set traffic and a second set traffic **(Huang'846 in Figure 2A shows that the Ethernet protocol running on an Ethernet device like that of Palmer'355's**

element 100 of Fig. 2 accommodates two types of traffic – real time and non-real time traffic – see Column 2, Line 67- Column 3, Line 8 and Column 5, Lines 60-63).

In view of the above, having the device of Palmer'355 and then given the well established teaching of Huang'846, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Palmer'355 as taught by Huang'846, since Huang'846 clearly states in Column 2, Lines 45-50 that such a modification allows guarantee of real time traffic over Ethernet.

Regarding **claim 20**, the combination of Palmer'355, Banks'979, Huang'846, and Einbinder'302 discloses a switching device **(Banks'979's Figure 6 shows a router switch 68 connecting the hubs)** with hubs **(Banks'979's Figure 6, elements 61 and 62)** and end devices **(Banks'979's nodes a and b of Figure 6)**, wherein devices of the first type **(i.e. IEEE 1394 – Node B)** and devices of the second type **(i.e. Ethernet – Node A)** communicate with each other. **(Banks discloses a modified hub device (Figure 5A, element 51 and Figure 6, elements 61 and 62) wherein devices of the first type (Figure 5A, element 53 or Node B of Figure 6 is an IEEE 1394 LAN as illustrated in Column 10, Line 444) and devices of the second type (Figure 5A, element 52 or Node A of Figure 6 is 802.3 LAN as illustrated in Column 10, Line 43) communicate with each other (See Column 1, Lines 20-25 and Figure 5B))**

Regarding **claim 21**, Palmer'355 discloses a switching device, wherein duration of the first portion is dependent on a number of active streams of the first protocol. **(See Column 5, Lines 7-18 Palmer'355 shows that the length of time allotted for the first protocol, i.e. isochronous, is dependent on the number of active streams which in turn depend on the isochronous channels established.)**

Regarding **claim 22,** Palmer'355 discloses a switching device **(i.e. X-Hub 4 of Figure 2)** that communicates with the hub devices **(i.e. All the DAs in Figure 2; See also Column 4, Lines 54-67)** Palmer'355 also discloses a transmission scheme that establishes an active stream involving a device of the first type **(i.e. isochronous or RTD)** coupled to the hub device **(i.e. DAs)** and further wherein appropriate bandwidth for the active stream **(i.e. isochronous)** is guaranteed when the active stream is established. **(See Column 4, Lines 55-67; Column 5, Lines 7-18; and Column 7, Lines 10-25 where Palmer'355 discloses establishing isochronous flows with guaranteed QoS and Bandwidth).**

Regarding **claim 23**, Palmer'355 discloses a switching device **(i.e. X-Hub 4 of Figure 2)** that communicates with the hub devices **(i.e. All the DAs in Figure 2; See also Column 4, Lines 54-67)**. Palmer'355 also discloses a transmission scheme that establishes an active stream involving a device of the first type **(i.e. isochronous or RTD)** coupled to the hub device **(i.e. DAs)** and to assign a label corresponding to the active stream **(i.e. isochronous)**. **(See Column 4, Lines 55-67; Column 5, Lines 7-**

18; and Column 7, Lines 10-25. Isochronous streams are created when the bandwidth can be guaranteed. It is inherent for the system to mark the newly created streams with some form of identification or label in order to distinguish it at the minimum from the asynchronous/non-real time flows).

Regarding **claim 25** the combination of Palmer'355, Banks'979, Huang'846, and Einbinder'302 discloses a switching device wherein the first protocol is isochronous capable and the second protocol is asynchronous. **(Since Banks'979 device supports IEEE 1394 protocol simultaneous support for Asynchronous and Isochronous traffic based on IEEE standards is inherent.)**

Regarding **claim 29**, Palmer'355 discloses a network of devices **(See Figure 2)** comprising:

a. a switching device **(See Figure 2, element 4, Figure 4A, and Figure 5A, and Figure 6, element 6)** including:

i. a plurality of ports **(Figure 4A shows 8 inputs and corresponding Figure 4B shows 8 DAs (i.e. hubs) and Column 11, Lines 43-50 illustrates that each port is coupled to a corresponding DA or Hub)**, each port coupled to a corresponding hub device for interfacing with devices coupled to the corresponding hub device **(Figure 4B shows 8 DAs (i.e. hubs) and Column 11: 43-50 illustrates that each port is coupled to a corresponding DA or Hub)**; and

ii. a control circuit coupled to the plurality of ports **(See Figures 4A, elements 45 is a processor that acts as a controller and is coupled to the 8 ports shown in Figure 4B).** Palmer'355 also discloses a transmission scheme where periodic signals are sent to signal the start of a period **(i.e. time frame see Column 4, Lines 55-67)** having a first portion and a second portion **(i.e. 1st and 2nd period –see Column 4, Lines 55-67)**, wherein only communications in the first protocol **(i.e. isochronous)** are allowed during the first portion and only communications in the second protocol **(i.e. asynchronous)** are allowed during the second portion. **(Palmer'355 shows a period having a first and second portion in Column 4, Lines 55-67 and to establish these cyclic periods Palmer shows use of signaling protocol between the hubs (i.e. DAs) and the switch (i.e. X-hub) in Column 7, Lines 5-23 and further using the signaling protocol the switch (i.e. X-hub) sends signals to the DAs to indicate the start of a phase or period.)**

b. a plurality of modified hub devices **(i.e. all DAs in Figure 2 including DA2 1000 are effectively the modified hubs)** each including:

i. a first interface **(i.e. interface of DA2 with RTD 200 – actual interface depicted as element 1006 of Figure 3)** configured for coupling to and communicating with one or more of a first type of device operating according to the first protocol **(i.e. first protocol is real time protocol as indicated in Column 9, Lines 18-30)**

ii. a second interface **(i.e. interface of DA2 with NRTD 100 – actual interface depicted as element 1004 of Figure 3)** configured for coupling to and

communicating with one or more of a second type of device operating according to only the second protocol **(i.e. second protocol is non-real time or asynchronous protocol as indicated in Column 9, Lines 18-30)**.

iii. a third interface **(i.e. interface of DA2 with one of the ports of X-Hub/switch 4 of Figure 2 – actual interface depicted as element 1008 of Figure 3)** coupled to one of the plurality of ports **(Figure 4A shows 8 inputs and corresponding Figure 4B shows 8 DAs (i.e. hubs) and Column 11, Lines 43-50 illustrates that each port is coupled to a corresponding DA or Hub)**.

Palmer'355 fails to disclose hub devices providing interfaces to one or more of a first type of device operating according to a first protocol and a second protocol.

Banks'979's discloses hub devices **(Figure 5A, element 51)** providing interfaces to one or more of a first type of device operating according to a first protocol **(Figure 5A, element 53 is an IEEE 1394 LAN as illustrated in Column 10, Line 44. As defined by the Standards Bodies and also confirmed by the Applicant – IEEE 1394 supports asynchronous and isochronous traffic. Clearly the Applicant is referring to the support for two different traffic types as constituting two different protocols)** and a second protocol and one or more of a second type of device operating according to only the second protocol **(Figure 5A, element 52 is 802.3 LAN as illustrated in Column 10, Line 43. See Column 10, Lines 35-45 – the network layer bridge is effectively a hub connecting devices in a LAN setting).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Palmer'355's switching device by incorporating

Banks'979's bridge/hub device. The motivation being Banks'979's network layer bridge that acts as a hub for interconnecting 1394 LAN to Ethernet LAN facilitates multimedia data exchange in different formats.

Palmer'355 fails to disclose the first protocol (i.e. real time isochronous protocol) has priority over the second protocol (i.e. non-real time Ethernet protocol).

However, the above mentioned claimed limitations are well known in the art as evidenced by Einbinder'302. In particular, Einbinder'302 discloses the first protocol (i.e. real time isochronous protocol such as voice) has priority over the second protocol (i.e. non-real time Ethernet protocol) **(See Column 2, lines 26-30 and 60-67 where Einbinder'302 teaches giving real time isochronous protocol high priority)**.

In view of the above, having the device of Palmer'355 and then given the well established teaching of Einbinder'302, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Palmer'355 as taught by Einbinder'302, since Einbinder'302 clearly states that such a modification allows high quality voice transmission over data network.

Palmer'355 fails to disclose a device further wherein the second protocol is prioritized between a first set traffic and a second set traffic.

However, the above mentioned claimed limitations are well known in the art as evidenced by Huang'846. In particular, Huang'846 discloses a device further wherein the second protocol **(i.e. Ethernet protocol as discussed in Column 2, Line 67-Column 3, Line 8– note that Palmer'355's 2nd protocol is Ethernet too)** is prioritized between a first set traffic and a second set traffic **(Huang'846 in Figure 2A shows that**

the Ethernet protocol running on an Ethernet device like that of Palmer'355's element 100 of Fig. 2 accommodates two types of traffic – real time and non-real time traffic – see Column 2, Line 67- Column 3, Line 8 and Column 5, Lines 60-63).

In view of the above, having the device of Palmer'355 and then given the well established teaching of Huang'846, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Palmer'355 as taught by Huang'846, since Huang'846 clearly states in Column 2, Lines 45-50 that such a modification allows guarantee of real time traffic over Ethernet.

Regarding **claim 30**, it is noted that the limitations of claim 30 corresponds to that of claim 20 as discussed above, please see the Examiner's comments with respect to claim 20 as set forth in the rejection above.

Regarding **claim 31**, Palmer'355 discloses a modified hub device **(Figure 2 DAs or Figure 3, element 1000)** further comprising a conversion circuit coupled to the first interface **(Figure 3, element 1004)**, the second interface **(Figure 3, element 1006)** and the third interface **(Figure 3, element 1008)** for converting transmissions into a format understood by a receiving device. **(See Column 10, Lines 1-10 Palmer'355 discussion on storing, formatting and storing data destined for different devices.)**

Regarding **claim 32**, it is noted that the limitations of claim 32 corresponds to that of claim 21 as discussed above, please see the Examiner's comments with respect to claim 21 as set forth in the rejection above.

Regarding **claim 33**, it is noted that the limitations of claim 33 corresponds to that of claim 22 as discussed above, please see the Examiner's comments with respect to claim 22 as set forth in the rejection above.

Regarding **claim 34**, it is noted that the limitations of claim 34 corresponds to that of claim 23 as discussed above, please see the Examiner's comments with respect to claim 23 as set forth in the rejection above.

Regarding **claim 36**, it is noted that the limitations of claim 36 corresponds to that of claim 25 as discussed above, please see the Examiner's comments with respect to claim 25 as set forth in the rejection above.

13. **Claim 26, 27, 37, and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer'355 in view of Banks'979, Huang'846 and Einbinder'302 as applied to claims 19 and 29 above, and further in view of Krishnakumar et al (US 6, 611, 529 B1).

Regarding **claim 26**, the combination of Palmer'355, Banks'979, Huang'846, and Einbinder'302 discloses a switching device (i.e. Palmer'355's x-Hub in Figures 2 and 4). The combination of Palmer'355, Banks'979, Huang'846 and Einbinder'302 fails to

disclose a switching device wherein communications from the first type of device in the second protocol are prioritized during the second portion over communications from the second type of device in the second protocol.

However, the above mentioned claimed limitations are well known in the art as evidenced by Krishnakumar'529. In particular, Krishnakumar'529 discloses a switching device **(Figure 1, hub 11)** wherein communications from the first type of device **(i.e. Real Time Station)** in the second protocol **(i.e. asynchronous)** are prioritized during the second portion over communications **(i.e. contention period)** from the second type of device **(i.e. non-real time station)** in the second protocol **(i.e. asynchronous or non-real time) (Krishnakumar'529 discloses real time devices have priority over non-real time devices during the contention period which is the second part of the time frame as illustrated in Column 4, Lines 50-67, Column 1, Lines 45-60. and Column 3, Lines 40-50).**

In view of the above, having the device based on the combination of Palmer'355, Banks'979, and Einbinder'302 and then given the well established teaching of Krishnakumar'529, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device based on the combination of Palmer'355, Banks'979, and Einbinder'302as taught by Krishnakumar'529, since Krishnakumar'529 clearly states that such a modification allows priority access for real time traffic in contention based networks as indicated in Column 4, Lines 50-55.

Regarding **claim 27**, the combination of Palmer'355, Banks'979, Huang'846 and Einbinder'302 discloses a switching device (i.e. Palmer'355's x-Hub in Figures 2 and 4). The combination of Palmer'355, Banks'979, Huang'846 and Einbinder'302 fails to disclose a switching device wherein communications from the second type of device in the second protocol are prioritized during the second portion over communications from the first type of device in the second protocol.

However, the above mentioned claimed limitations are well known in the art as evidenced by Krishnakumar'529. In particular, Krishnakumar'529 discloses a switching device **(Figure 1, hub 11)** wherein communications from the second type of device **(i.e. non-real time device)** in the second protocol **(i.e. contention based period)** are prioritized during the second portion over communications from the first type (i.e. real time device) of device in the second protocol **(i.e. asynchronous or non-real time) (Krishnakumar'529 discloses real time devices have priority over non-real time devices during the contention period which is the second part of the time frame as illustrated in Column 4, Lines 50-67, Column 1, Lines 45-60. and Column 3, Lines 40-50. However the non-real time devices have equal priority as the real time devices when the real time devices generate non-real time signals as illustrated in Column 4, Lines 41-46).**

In view of the above, having the device based on the combination of Palmer'355, Banks'979, Huang'846 and Einbinder'302 and then given the well established teaching of Krishnakumar'529, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device based on the combination of

Palmer'355, Banks'979, Huang'846 and Einbinder'302as taught by Krishnakumar'529, since Krishnakumar'529 clearly states that such a modification allows priority access for real time traffic in contention based networks as indicated in Column 4, Lines 50-55.

Regarding **claim 37**, it is noted that the limitations of claim 37 corresponds to that of claim 26 as discussed above, please see the Examiner's comments with respect to claim 26 as set forth in the rejection above.

Regarding **claim 38**, it is noted that the limitations of claim 38 corresponds to that of claim 27 as discussed above, please see the Examiner's comments with respect to claim 27 as set forth in the rejection above.

14. **Claims 28 and 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Palmer'355 in view of Banks'979, Huang'846 and Einbinder'302 as applied to claims 19 and 29 respectively above, and further in view of Thaler'267.

Regarding **claim 28**, the combination of Palmer'355, Banks'979, Huang'846 and Einbinder'302 teaches all aspects of the claimed invention as set forth in the rejection of claims 19 and 29 but does not disclose a modified hub device wherein the switching device is configured for coupling to a remote network of devices thereby providing a wide area network.

Thaler'267 discloses a modified hub **(Figure 1, elements 100, and 112 are hubs)** device wherein the switching device **(Figure 1, element 104)** is the switching

device is configured for coupling to a remote network of devices thereby providing a wide area network **(Figure 1, element 108 is a WAN).**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Palmer'355's, Banks'979's, Huang'846 and Einbinder'302's bridge to incorporate an interface configured for coupling to and communicating with a switching device configured for coupling to a remote network of devices. The motivation for coupling to remote network devices is to access the Internet and have the ultimate networking capability.

Regarding **claim 39**, it is noted that the limitations of claim 38 corresponds to that of claim 28 as discussed above, please see the Examiner's comments with respect to claim 28 as set forth in the rejection above.

15. **Claims 40 and 45** are rejected under 35 U.S.C. 103(a) as being unpatentable over Romans et al (US 6, 587, 453) in view of Huang'846.

Regarding **claim 40**, Romans'453 discloses a method of transmitting data within a network **(See Figure 2)** including one or more of a first type of device **(A Voice and Data Node on Figure 2)** operating according to a first protocol **(Isochronous traffic via TDMA protocol – see Column 2:27-29)** and a second protocol **(Asynchronous traffic via CSMA/CA protocol – see Column 2:30-36)** and one or more of a second type of device **(Figure 2, Voice Terminals)** operating according to only the second protocol **(Isochronous traffic via TDMA protocol – see Column 2:27-29)** where

devices of the first type and devices of the second type communicate with each other **(All nodes in Figures 2 and 3communicate with each other as illustrated in Columns 2:37-45)** comprising:

a. establishing a periodic cycle including a first portion and a second portion **(See Figure 4 – Contention Period and Contention Free Period - Column 2:56-65)** ;

b. allowing only transmissions according to the first protocol during the first portion **(Isochronous traffic via TDMA protocol during Contention Free Period - See Column 2:56-65)**; and

c. allowing only transmissions according to the second protocol during the second portion **(Asynchronous traffic via CSMA/CA protocol- See Column 2:56-65)**, wherein the first protocol has priority over the second protocol. **(See Column 2:13-15, In the Contention Free Period Isochronous data has priority over Asynchronous data in that the transmission of Asynchronous data starts only after the complete transmission of Isochronous data. Further given a super frame that repeats periodically as shown on Column 3:30-31 the duration of the Contention Free Period where isochronous data is transmitted determines the length of the Contention Period where Asynchronous data is transmitted and effectively shows the priority given to Isochronous data).**

Romans'453 fails to disclose a method further wherein the second protocol is prioritized between a first set traffic and a second set traffic.

However, the above mentioned claimed limitations are well known in the art as evidenced by Huang'846. In particular, Huang'846 discloses further wherein the second

protocol **(i.e. Ethernet protocol as discussed in Column 2, Line 67- Column 3, Line 8– note that Romans'453's 2nd protocol is Ethernet too)** is prioritized between a first set traffic and a second set traffic **(Huang'846 in Figure 2A shows that the Ethernet protocol running on an Ethernet device like that of Romans'453 voice and data node of Fig. 2 accommodates two types of traffic – real time and non-real time traffic – see Column 2, Line 67- Column 3, Line 8 and Column 5, Lines 60-63).**

In view of the above, having the method of Romans'453 and then given the well established teaching of Huang'846, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Romans'453 as taught by Huang'846, since Huang'846 clearly states in Column 2, Lines 45-50 that such a modification allows guarantee of real time traffic over Ethernet.

Regarding **claim 45**, Romans'453 discloses a method of transmitting data within a network **(See Figure 2)** including one or more of a first type of device **(A Voice and Data Node on Figure 2)** operating according to an isochronous protocol **(Isochronous traffic via TDMA protocol – see Column 2:27-29)** and an asynchronous protocol **(Asynchronous traffic via CSMA/CA protocol – see Column 2:30-36)** and one or more of a second type of device **(Figure 2, Data Node)** operating according to only asynchronous protocol **(Asynchronous traffic via CSMA/CA protocol – see Column 2:30-36)** where devices of the first type and devices of the second type communicate with each other **(All nodes in Figures 2 and 3 communicate with each other as illustrated in Columns 2:37-45)** comprising:

a. establishing a periodic cycle including a first portion and a second portion **(See Figure 4 – Contention Period and Contention Free Period - Column 2:56-65)** ;

b. allowing only transmissions according to the isochronous protocol and time critical Ethernet traffic during the first portion **(Isochronous traffic via TDMA protocol during Contention Free Period - See Column 2:56-65 – since the voice data node is a pc it is generating real time Ethernet frames carrying voice data)**; and

c. allowing only transmissions according to the asynchronous protocol during the second portion **(Asynchronous traffic via CSMA/CA protocol- See Column 2:56-65)**, wherein the isochronous protocol has priority over the second protocol. **(See Column 2:13-15, In the Contention Free Period Isochronous data has priority over Asynchronous data in that the transmission of Asynchronous data starts only after the complete transmission of Isochronous data. Further given a super frame that repeats periodically as shown on Column 3:30-31 the duration of the Contention Free Period where isochronous data is transmitted determines the length of the Contention Period where Asynchronous data is transmitted and effectively shows the priority given to Isochronous data)**.

Romans'453 fails to disclose a method further wherein the time critical Ethernet traffic has priority over the asynchronous protocol.

However, the above mentioned claimed limitations are well known in the art as evidenced by Huang'846. In particular, Huang'846 discloses a method further wherein the time critical Ethernet traffic has priority over the asynchronous protocol **(see Column 2, Line 67- Column 3, Line 8 and Column 5, Lines 60-63 in relation to Fig.**

2A where Huang'846 discloses time critical real time Ethernet traffic has priority over Asynchronous protocol that carries non-real time Ethernet traffic) .

In view of the above, having the method of Romans'453 and then given the well established teaching of Huang'846, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the method of Romans'453 as taught by Huang'846, since Huang'846 clearly states in Column 2, Lines 45-50 that such a modification allows guarantee of real time traffic over Ethernet.

16. **Claims 42** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heil (US 5450411) in view of Brown (US Pub. 2004/0019731 A1) and Huang'846.

Regarding **claim 42**, Heil'411 discloses a network of devices **(See Figure 2)** comprising: a. a switching device **(Figure 3 – element 24 atm switch))** including: I. a plurality of ports **(all atm switches have ports)**; and II. a control circuit coupled to the plurality of ports **(some form of control switching circuit has to be interfaced to the ports and can be as simple as the actual switching element as it has to switch from one port to another)** and b. a plurality of modified hub devices **(Figure 3 element 22 – ATM network interface)** each including: i. a first interface configured for coupling to and communicating with one or more of a first type of device operating according to the isochronous protocol and the asynchronous protocol **(A given device can have two type of processors as shown in Figure 5 and hence using both isochronous and non-isochronous protocol)**;

ii. a second interface configured for coupling to and communicating with one or more of

a second type of device operating according to only the asynchronous protocol**(A given device can have one type of processor as shown in Figure 3 and hence using either isochronous or non-isochronous protocol)**; and

iii. a third interface coupled to a corresponding one of the plurality of ports **(See interface between elements 22 and 24 in Figure 3)**.

Heil'411 fails to disclose sending a periodic signal which signals the start of a period having a first portion and a second portion, wherein only communications in an isochronous protocol are allowed during the first portion and only communications in an asynchronous protocol are allowed during the second portion; wherein the isochronous protocol has priority over the asynchronous protocol.

Suda'255 discloses sending a periodic signal **(See Figure 17, CSP – Cycle Start Packet)** which signals the start of a period having a first portion **(i.e. isochronous)** and a second portion **(i.e. asynchronous)**, wherein only communications in an isochronous protocol are allowed during the first portion **(i.e. between CSP and second sub-action gap only isochronous traffics moves)** and only communications in an asynchronous protocol are allowed during the second portion **(between the second sub-action gap and the next cycle CSP only asynchronous information moves)**; wherein the isochronous protocol has priority over the asynchronous protocol portion **(See Column 13, Lines 37-45) (Note that each cycle starts with a CSP signal and is divided into two portions for transmitting isochronous packets and asynchronous packets as discussed by Suda'255 in Column 13, Lines 30-67 and Column 14, Lines 1-20. Isochronous traffic has priority over Asynchronous priority)**.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Heil'41's device to incorporate a transmission scheme to handle asynchronous and isochronous traffic. The motivation being given that asynchronous and isochronous traffics are the main type of traffics handled in home and small office networks and having such a transmission scheme allows different devices to communicate in these types of networks efficiently with high QoS as can easily be inferred from Suda'255 Column 1, Lines 50-55.

Heil'41 fails to disclose a device further wherein the second protocol is prioritized between a first set traffic and a second set traffic.

However, the above mentioned claimed limitations are well known in the art as evidenced by Huang'846. In particular, Huang'846 discloses a device further wherein the second protocol **(i.e. Ethernet protocol as discussed in Column 2, Line 67-Column 3, Line 8–)** is prioritized between a first set traffic and a second set traffic **(Huang'846 in Figure 2A shows that the Ethernet protocol running on an Ethernet device like that of Heil'41's non-isochronous processor of Fig. 3 accommodates two types of traffic – real time and non-real time traffic – see Column 2, Line 67-Column 3, Line 8 and Column 5, Lines 60-63).**

In view of the above, having the device of Heil'41 and then given the well established teaching of Huang'846, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the device of Heil'41 as taught by Huang'846, since Huang'846 clearly states in Column 2, Lines 45-50 that such a modification allows guarantee of real time traffic over Ethernet.

Allowable Subject Matter

17. **Claim 44** is allowed.

18. The following is an examiner's statement of reasons for allowance:

Claim 44 is allowable over the prior art of record since the cited references taken individually or in combination fail to particularly teach or suggest a method of transmitting data within a network including one or more of a first type of device operating according to an isochronous protocol and an asynchronous protocol and one or more of a second type of device operating according to only the asynchronous protocol, wherein devices of the first type and devices of the second type communicate with each other within the network, comprising:

a. establishing a periodic cycle including a first portion and a second portion;

b. allowing only transmissions according to the isochronous protocol during the first portion; and

c. allowing only transmissions according to the asynchronous protocol during the second portion,

wherein the isochronous protocol has priority over the asynchronous protocol, and further wherein the asynchronous protocol is prioritized between IEEE 1394-2000 asynchronous traffic and Ethernet traffic.

19. **Claims 6, 14, 24, 35, 41, and 43** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following US Patent is cited to show the state of the art with IEEE 1394/Ethernet Protocol conversion:

US Patent (6, 813, 651) to Smith et al

The following US Patents are cited to show the state of the art with respect to ISOCHRONOUS/ASYNCHRONUS transmission schemes:

US Patent (6, 339, 584) to Gross et al

US Patent (6, 381, 647) to Darnell et al

US Patent (6, 011, 784) to Brown et al

The following US Patent is cited to show the state of the art with Ethernet Switching technology:

US Patent (6, 577, 631) to Keenan et al

Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571)272-6046. The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Aung S. Moe can be reached on 571 272 7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Habte Mered/
Examiner, Art Unit 2616

1-19-08

/Aung S. Moe/
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